

# Map Unit Properties Table

Age	Unit Name (Symbol)	Features and Description	Erosion Resistance	Suitability for Development	Hazards	Potential Paleontologic Resources	Potential Cultural Resources	Mineral Specimens	Potential for Karst Issues	Mineral Resources	Habitat	Recreation Potential	Global Significance
QUATERNARY		Alluvium & surficial deposits (Qa); Alluvial & colluvial deposits (Qac), Eolian deposits (Qe); Fan deposits (Qf); Landslides, mudflows, debris flows (Ql); Active landslide deposits (Qla); Earthflow & mudflow lobes (Qlm); Talus, slope wash & colluvium (Qts); Volcanic ash (Qvb); Travertine (Qtr), Boulder gravel deposits near T5oN,R9W (Qbo), Terrace and alluvial fan deposits in Bostwick Park & vicinity (Qtb); Terrace and pediment gravel (Qg); Pediment deposits (Qpa); Highest pediment remnant (Qpb); Older stream gravel (Qsg); Terrace deposits - undifferentiated (Qt); Terrace deposits of Cimarron & Blue Creek drainages (Qtx); Terrace and pediment deposits of Alkali Creek, Onion Valley and Crystal Creek (Qtax); Terrace and pediment deposits related to the Uncompahgre River (Qtux); Boulder gravel deposits - Bostwick Park (QTbg); High level gravel remnants (QTg); Older landslide deposits on Waterdog Peak (QTI)	Low	Unconsolidated surficial deposits, should be fine for most development; very permeable	Potential for slumping, mass wasting and other slope processes	Recent fossils	Foundations for dwellings; tools & other artifacts; campsites possible	Metamorphic and igneous pebbles	None	Sand, silt, gravel, and clay	Ground cover, burrows, vegetation base	Ground surface for trails, picnic areas, mountain biking, etc.	Precisely defines Quaternary sequence
TERTIARY		Hinsdale Formation (Th), gravel (Thg); Carpenter Ridge Tuff (Tc); tuffaceous breccia (Tcb); nonwelded pumiceous tuff (Tcn); vitrophyre (Tcv); Tuff of Long Gulch (Tlo); Rat Creek Tuff (Tr); Fish Canyon Tuff (Tf); nonwelded tuff (Tfn); vitric tuff (Tfv), coarse gravel (Tfg); Sapinero Mesa Tuff (Ts); nonwelded tuff (Tsn); black vitrophyre (Tsv), gravel (Tsg); Dillon Mesa Tuff (Td), tuff breccia (Tdb); vitrophyre (Tdv), gravel (Tdg), Blue Mesa Tuff (Tb); black vitrophyre (Tbv); gravel (Tbg); Gravel Deposits Undifferentiated (Tg); Talus, slope wash, or colluvium, undivided (Tgt); Jasper or siliceous sinter (Tj); Travertine (Ttr); Lake Fork Formation- hornblende rhyo dacite flows (Tl), andesite flows and autobreccia (Tla); andesitic to quartz- latitic breccia (Tlb); porphyritic andesite (Tlba); rhyodacite dikes (Tld); quartz latite flows and breccia (Tll); rhyodacite flows (Tlr); pumiceous tuff (Tlt); coarse gravel (Tlg).	Moderate	None	Some rockfall potential	None	None	Phenocrysts of olivine, feldspar, etc. in tuffs	None	Gravel	Vugs in tuffs may provide nesting habitat	Climbing is not recommended on tuff units	Age dating
		West Elk Breccia (Tw), ash- flow tuff (Twa), brecciated rhyodacitic flows (Twf), volcanic conglomerate (Twc), laharic volcanic and tuff breccia (Twt), coarse gravel (Twg)	Moderate	None	Some rockfall potential	None	None	Phenocrysts of olivine, feldspar, etc in flows	None	None	Vugs in tuffs may provide nesting habitat	Climbing is not recommended on tuff units	Age dating
CRETACEOUS		Cimarron Ridge Formation (Kcr), Camptonite (Kc), Fruitland Formation (Kf), Pictured Cliffs Sandstone (Kpc)	Moderate	Shale beds may fail when exposed on a slope if weathered	Some rockfall potential, and slumping	Kf and Kpc contain coal beds with plant fossils	None	Labradorite and various igneous minerals	Some in calcareous sandstone beds	Coal beds locally in Kf	None	Fine trail base	Age dating; coal beds
		Mancos Shale (Km)	Low	Bentonite beds (swelling clays) render unit unstable along slopes; slippery when wet	Potential for slumping, mass wasting and other slope processes	Scaphites depressus, Exiteloceras jenneyi, Didymoceras cheyennense, idymoceras nebrascens, marine mollusks	None	Large gypsum crystals; concretions	Some in calcareous siltstone beds	None	Friable units provide burrows	Swelling clays render this unit unstable; slippery when wet	Widespread unit in southwestern Colorado
		Dakota Sandstone and Burro Canyon Formations (Kdb)	Moderate to high	None	Some rockfall potential where unit is undercut	Some plant impressions, worm burrows, petrified wood	Chert source for tool making	Pebble conglomerate	Some in carbonaceous shale beds	Coal beds locally	None	Fine trail base	Widespread coal beds

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JURASSIC	Morrison Formation (Jm)	Mudstone, siltstone, thin lenticular sandstone beds; upper part is light-green to gray mudstone and siltstone with very thin intercalated silty sandstone beds; lower half red to purple mudstone with thin lenticular sandstone beds	Low to moderate	Bentonite beds (swelling clays) render it unstable along slopes; very slippery when wet	Potential for slumping, mass wasting and other slope processes	Dinosaurs, other reptiles, and a variety of plant fossils	Chert source for tool making	Fossils	Some in carbonaceous siltstone beds	Uranium ore	Friable units provide burrows	Swelling clays: unstable and slippery when wet; uranium ore may deter recreation.	Dinosaur fossils still being uncovered
JURASSIC	Wanakah Formation ((Jw), Junction Creek Sandstone Member (Jwj))	Interbedded sandstone, siltstone, gypsum, and mudstone in upper beds; Jwj is a discontinuous fine-grained friable highly cross-bedded light-gray to light-yellowish-gray to pink eolian sandstone, mapped locally	Moderate to high	Gypsum and mudstone beds may fail on weathered slopes.	Potential for slumping, mass wasting and other slope processes; rockfalls where unit is undercut	Fossil algae, fresh-water clams, snails	Chert source for tool making	Gypsum crystals and nodules	None	Gypsum	None	Fine trail base	Index fossils for dating
	Entrada Sandstone (Je)	Yellow fine-grained sandstone with some scattered medium to coarse, well-rounded grains; basal conglomerate, detritus from underlying Precambrian rocks	High	None	Some rockfall potential where unit is undercut	None	Possible petroglyphs along cliff faces	None	None	Flagstone	Cliffs provide nesting sites and big horn sheep habitat	Climbing and mountain biking	Correlation across southern U.S.
PRECAMBRIAN - CAMBRIAN - ORDOVICIAN	Diabase dikes (OCd) Trachyte & Trachyte Porphyry Dikes(CpCt); Intrusive breccia (CpCbx); Iron Hill Alkaline complex (CpC); Carbonatite (CpCc); Nepheline syenite (CpCns); Pyroxenite-nepheline syenite hybrid rock (CpCps); Ijolite (CpCi); Melanite-orthoclase rock (CpCmo); Magnetite- ilmenite- perovskite dikes (CpCmt); Pyroxenite (CpCpy); Rocks altered to fenite (Caf).	Various intrusive igneous rocks present as dikes, breccias, and irregular veins and complexes; Refer to BLCAGLG.hlp for specific descriptions for individual units	High	None	Some rockfall potential	None	None	Pegmatites	None	Th, Mn, V, Au, Ag, & Cu sulfides; Te Nb, Ti; vermiculite	Cliffs provide nesting sites and big horn sheep habitat	Steep for trails	Age dating
PRECAMBRIAN	Fine- to Medium- grained Granite (pCf); Syenite & Related Rocks (pCxx); Granite & quartz syenite of Wolf Creek (pCwe); Quartz syenite, syenite, & granite (pCsy); Fine- grained melasyenite (pCfs); Porphyritic augite syenite (pCas); Biotite syenite (pCbs); Gray porphyritic syenite (pCps); Melasyenite (pCms); Biotite syenite and hornblende syenite (pCcs); Leucosyenite (pCls); Minette (pCmi); Curecanti Quartz Monzonite (pCe); Lamprophyre (pCl); Vernal Mesa Quartz Monzonite (pCv); Gabbro (pCga); Olivine Pyroxenite (pCop); Undifferentiated Granitic Rocks (pCx); Metarhyolite (pCmr); Pegmatite (pCp); Quartz monzonite or granite (pCqm); Granite & quartz syenite of Carpenter Gulch (pCcg); Granite, leucogranite, & quartz monzonite (pCg); Granophyre (pCgr); Porphyritic granite (pCpg); Quartz veins (pCqv), Trachyte Dikes (pCt); Powderhorn Granite (pCpo); Granite of Tovlar Peak (pCtp); Quartz Diorite- to- Monzonite of Gold Basin (pCgb); Lamprophyre (pCl); Pitts Meadow Granodiorite (pCpm); Light-colored, gneissic granodiorite or quartz diorite (pCpv); Granite of South Beaver Creek (pCsb); Granite to grano- diorite ((pCsb); Granite to quartz monzonite porphyry (pCsbp); Diorite or Quartz Diorite (pCqd); Quartzite & metachert (pCqt); Black Canyon Schist & Gneiss (pCb); Schist and gneiss, undifferentiated (pCsg); Amphibolite (pCa); Quartz- biotite gneiss & migmatite (pCbt); Quartzofeldspathic gneiss (pCf); Migmatitic gneiss (pCgm); Layered quartzitic gneiss (pCgl); Massive quartzitic gneiss (pCgq); Hornblende schist & amphibolite (pCh); Mica schist (pCm); Quartzofeldspathic & quartz- sericite schist (pCqf); Quartzite (pCqt); Quartz- biotite schist, gneiss & migmatite (pCs); Dubois Greenstone (pCdb); Quartz- biotite- calcite schist (pCdb); Amphibolite, metadiorite, & metagabbro (pCda); Amphibolite-granite hybrid rock of Carpenter Gulch (pCdag); Quartzite conglomerate (pCdc); Felsite & felsite porphyry (pCdf), Metavolcanic hornblende schist & amphibolite (pCdh); Quartzite (pCdq), Quartz- sericite schist & quartzite (pCdqs); Interlayered greenstone & metasedimentary rocks (pCds)	Granites, diorites, syenites, quartz monzonite, gabbros, pegmatites, gneisses and other assorted metamorphic and intrusive igneous rocks; Specific unit descriptions are too lengthy to include here, please refer to BLCAGLG.hlp for detailed information about each unit listed. BLCAGLG.hlp (Windows help file) is included on CD with digital geologic map coverages	High	Steep slopes: inaccessible for development	Some rockfall potential	None	None	Pegmatites, metamorphic and igneous rock samples	None	Attractive building stones, gold, copper, silver veins locally contained in quartz; pyrite, chalcocopyrite, sphalerite, vulcanite	Cliffs provide nesting sites and big horn sheep habitat	Steep for trails	Age dating; large Precambrian record